# Yolo County Full-Scale Landfill Bioreactor (EPA Project XL)

US EPA Workshop on
Bioreactor Landfills
February 27-28, 2003

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# Presentation Summary

- Project Objectives and Goals
- Achievements to Date
- Project Results
- Project Challenges
- Conclusions

# Project Partners

- Project Partners:
  - California Integrated Waste Management Board
  - California Energy Commission-PIER
  - National Energy Technology Laboratory, U.S. DOE
  - Western Regional Biomass Energy Program, U.S. DOE
  - Institute for Environmental Management (Tech. Support)
  - U.S. Environmental Protection Agency
  - Solid Waste Association of North America
  - California State Regional Water Quality Control Board
  - California State Water Resources Control Board
  - California Air Resources Control Board
  - Yolo-Solano Air Quality Management District
  - Yolo County Environmental Health

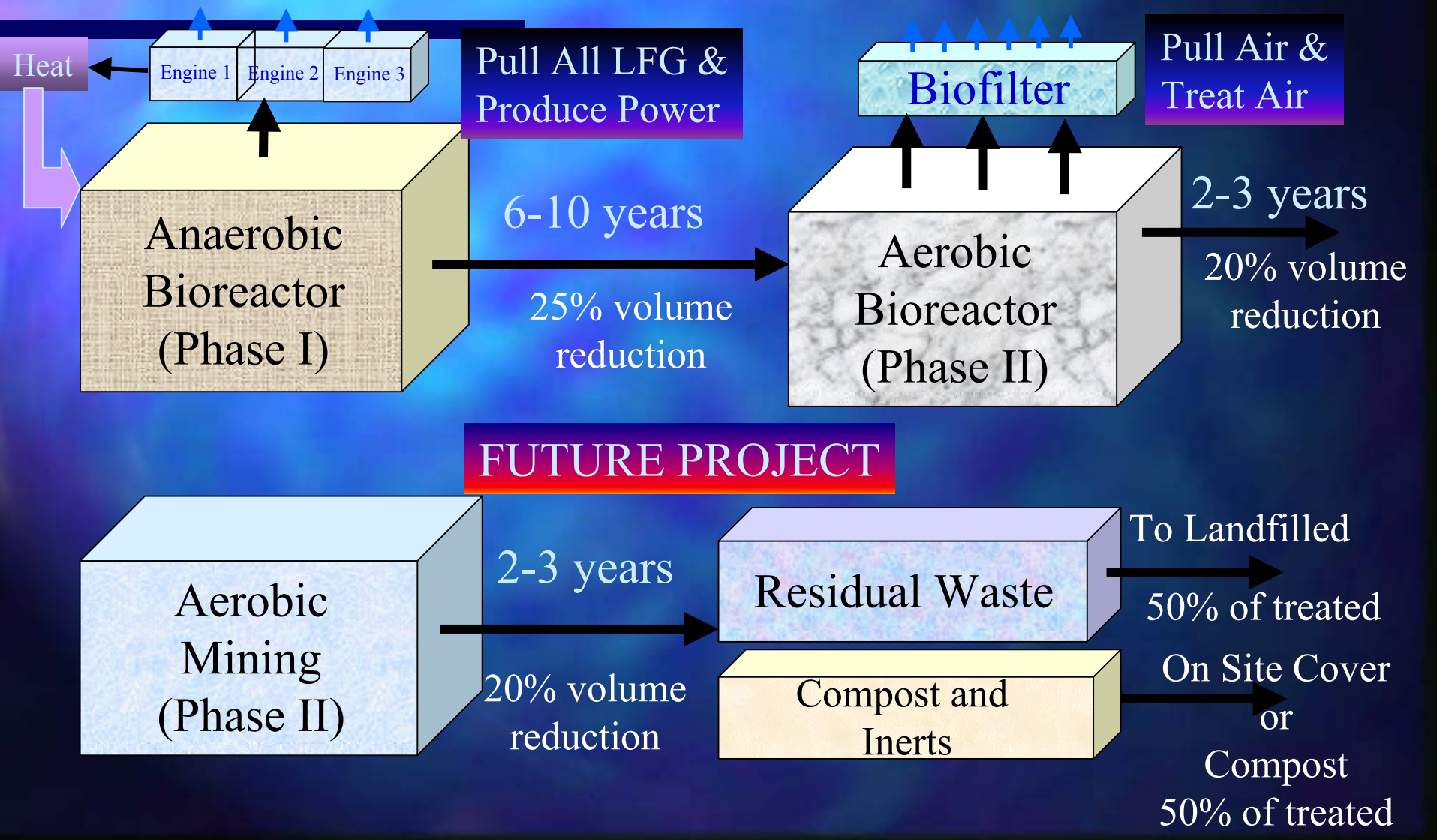
# Project Objectives

- Demonstrate landfill full-scale operation to accelerate methane generation (anaerobic) and eliminate methane production (aerobic) through liquid addition without significant liquid head build up over the base liner
- Document and provide project technical data to regulatory agencies for permitting an acceptance of full-scale bioreactor operation (EPA project XL)
- Improve methane gas efficiency capture of nearly all methane generated without impact to air quality
- Determine cost benefit ratio for full-scale operation

# Project Goals

- Instrument landfill to collect and analyze:
  - Landfill gas volumetric flow, temp., composition
  - Landfill leachate volumes, temp., pH, chemistry
  - Landfill waste temp., moisture content & settlement
  - Measure liquid level above the landfill base liner
  - Parasitic energy use for operation
- Develop mass balance and model leachate and methane gas generation over time
- Develop cost benefit ratio for the project

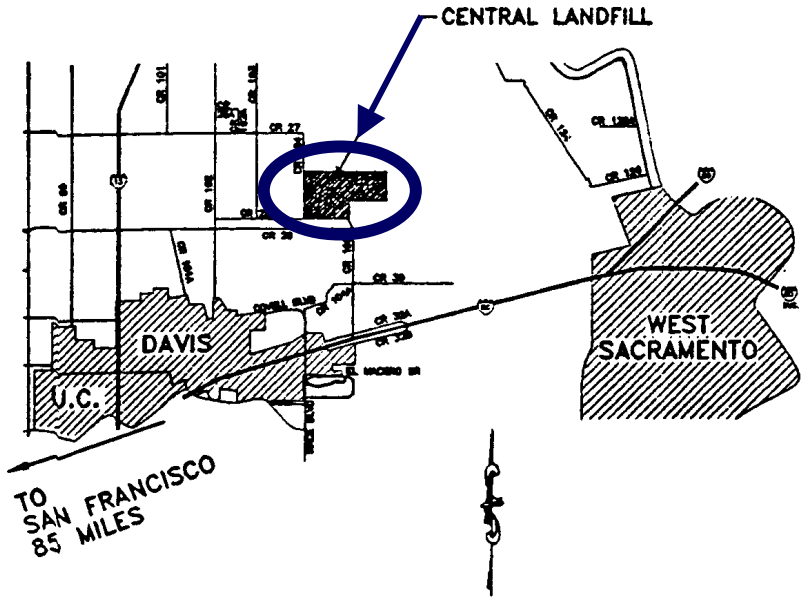
# Anaerobic & Aerobic Process for Treatment of Waste



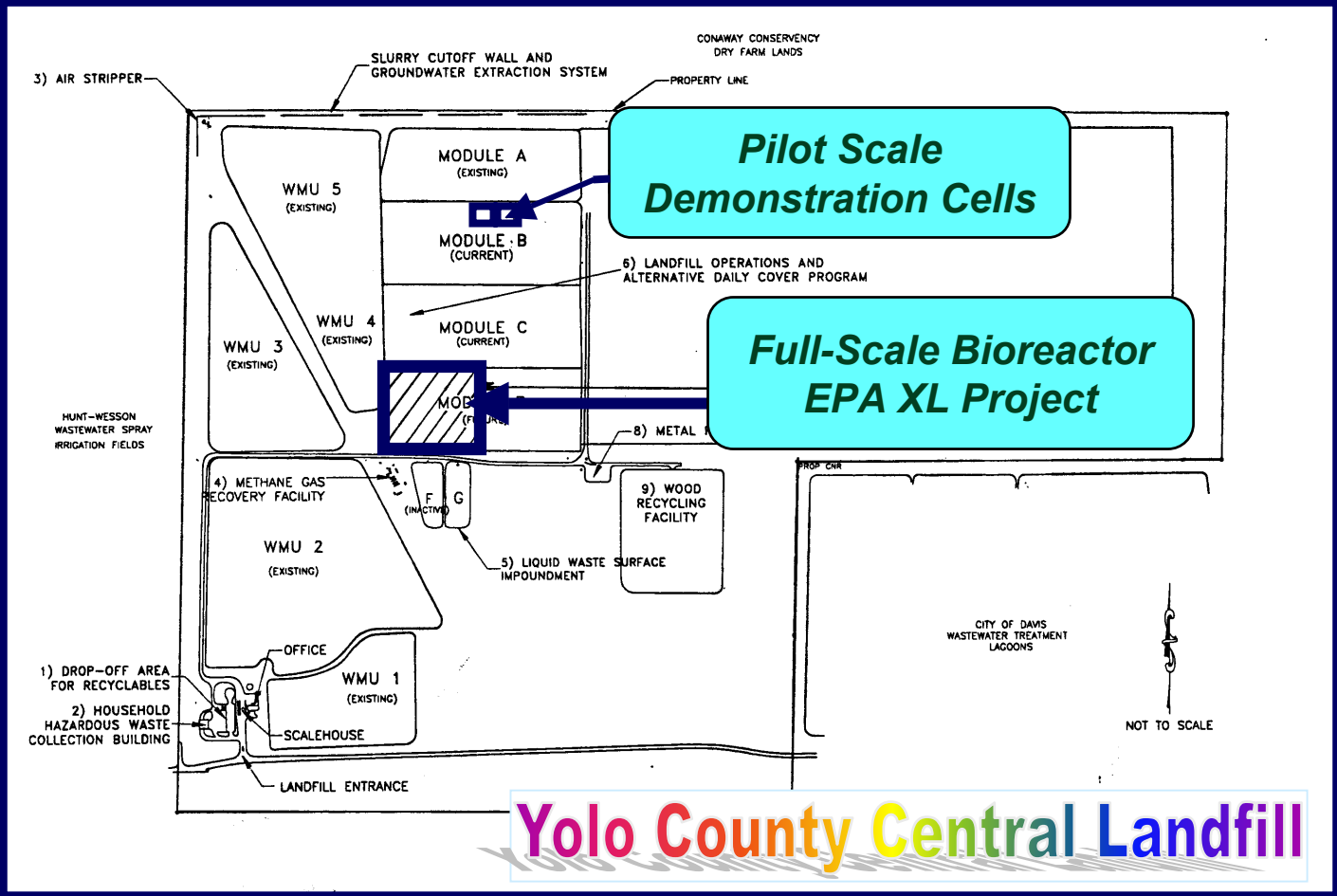
# Project Location Map

## California


## Woodland



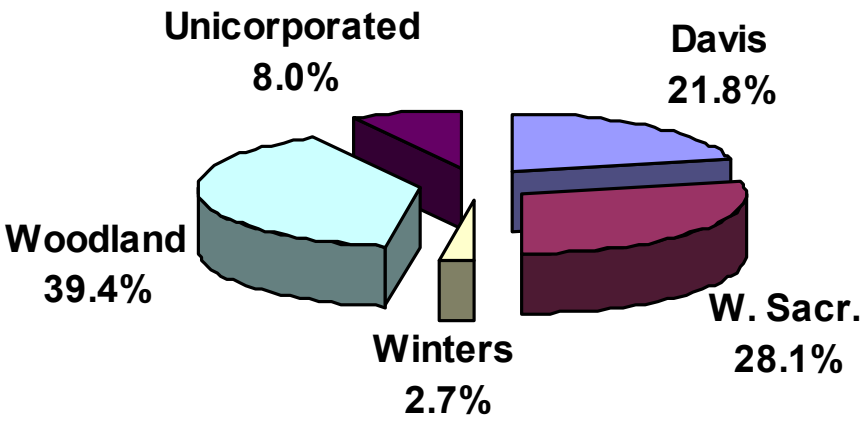
# Project Site Map



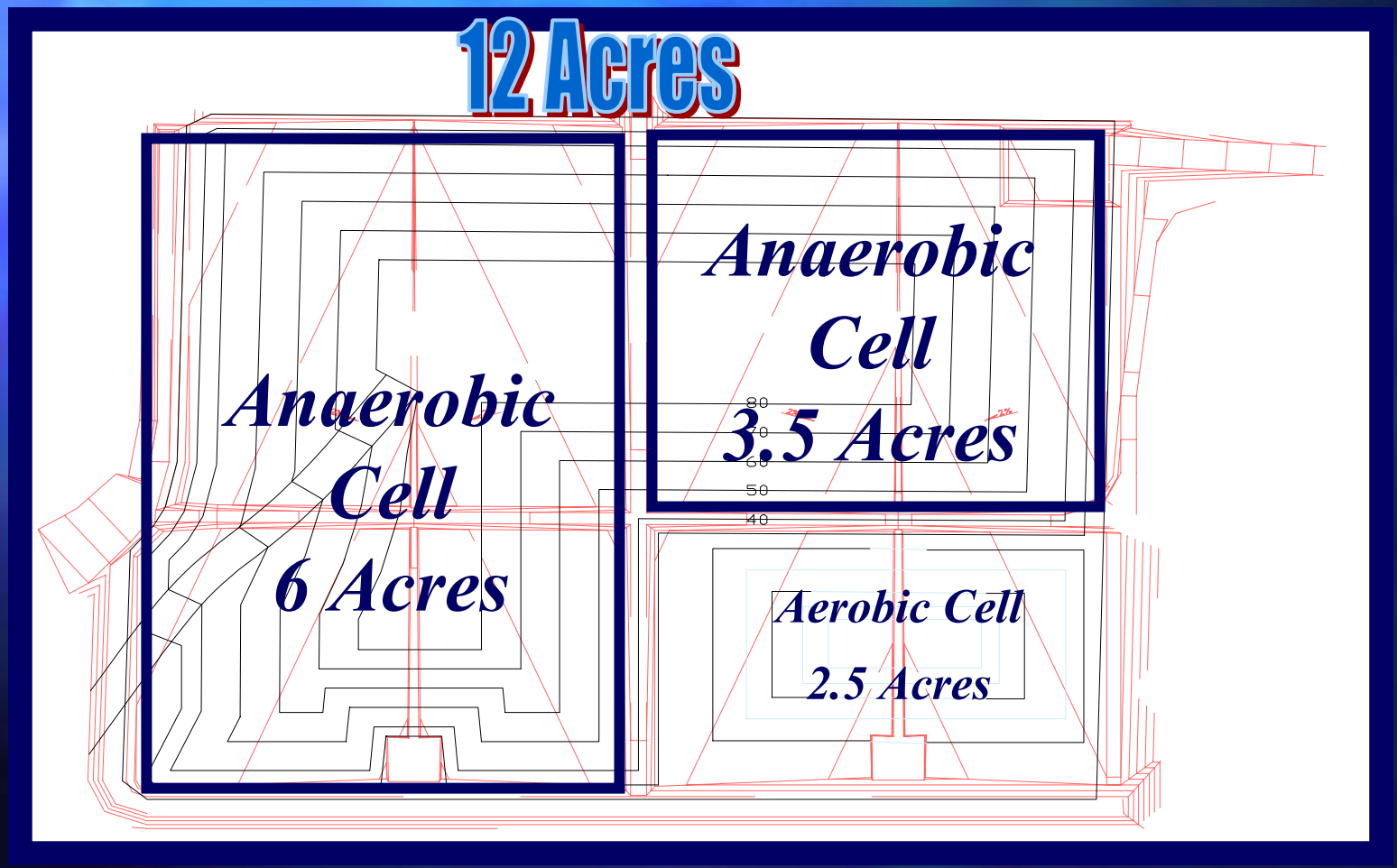
# Project Summary

## Yolo County Waste Percent by Weight

**(44% Residental, 42% Commercial, 14% Industrial)**



# Full-Scale Project Site Map



# Achievements to Date

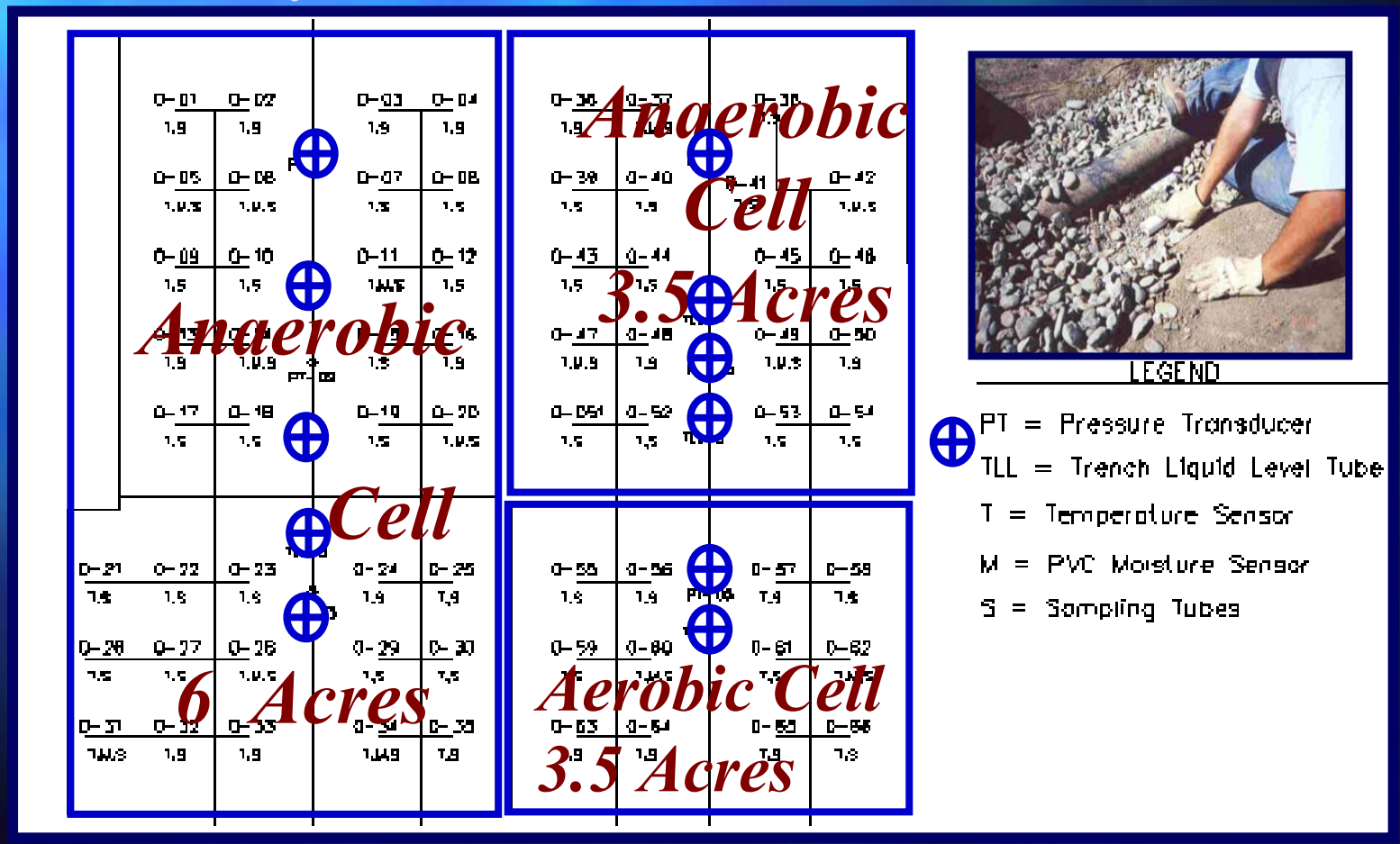
- Construction of base liner system

# Achievements to Date

- Construction of landfill waste filling

# Achievements to Date

- Base Layer Instrumentation

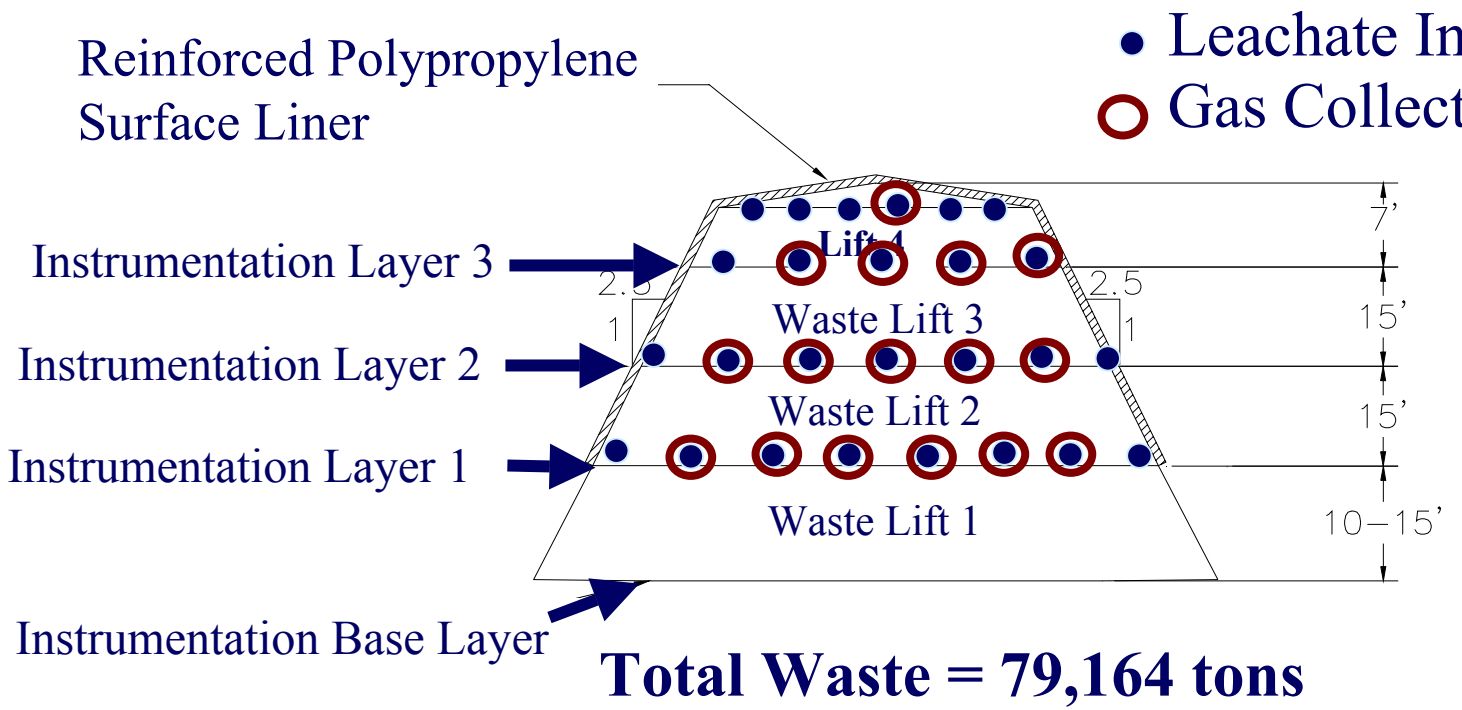


# Achievements to Date

- Construction of the instrumentation system (Temperature, Moisture, Tubes)

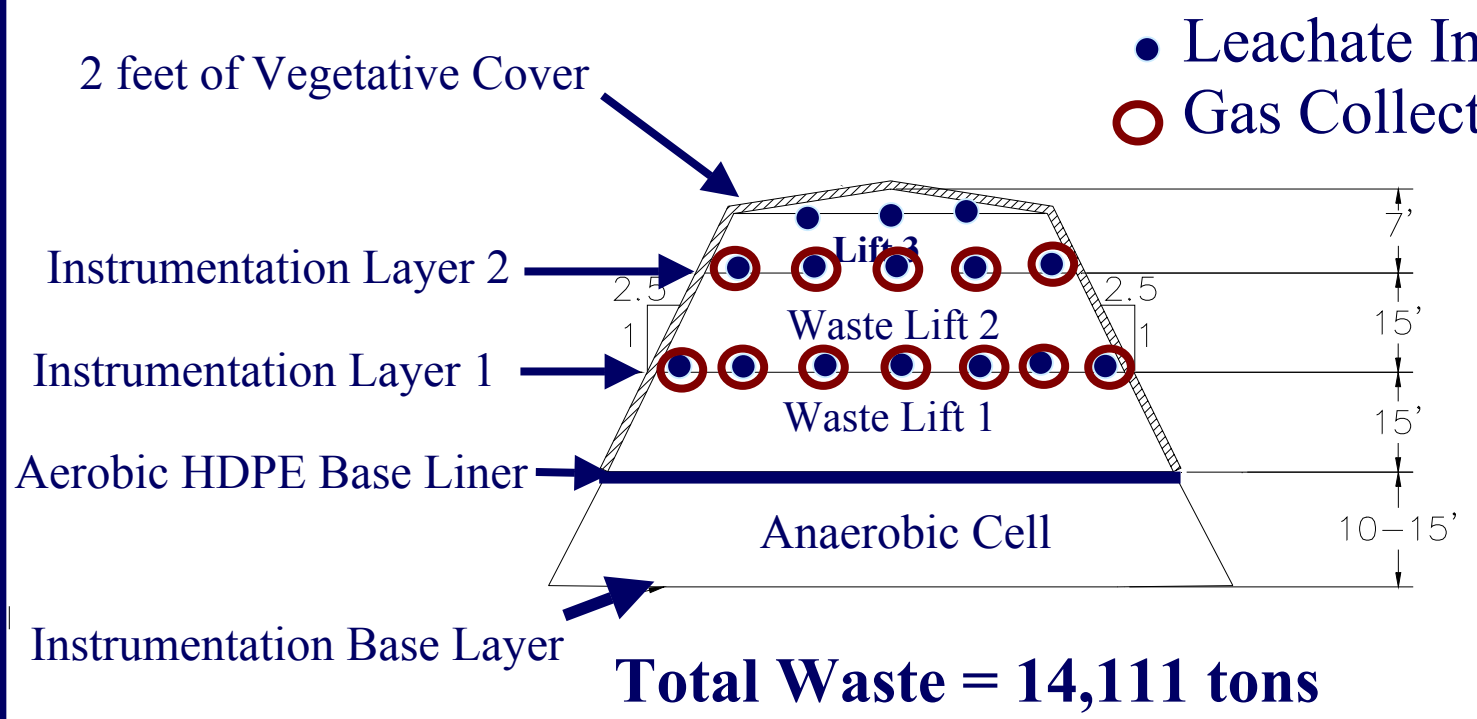
# Achievements to Date

- Northeast 3.5-acre anaerobic cell x-section



# Achievements to Date

- Southeast 2.5-acre aerobic cell x-section



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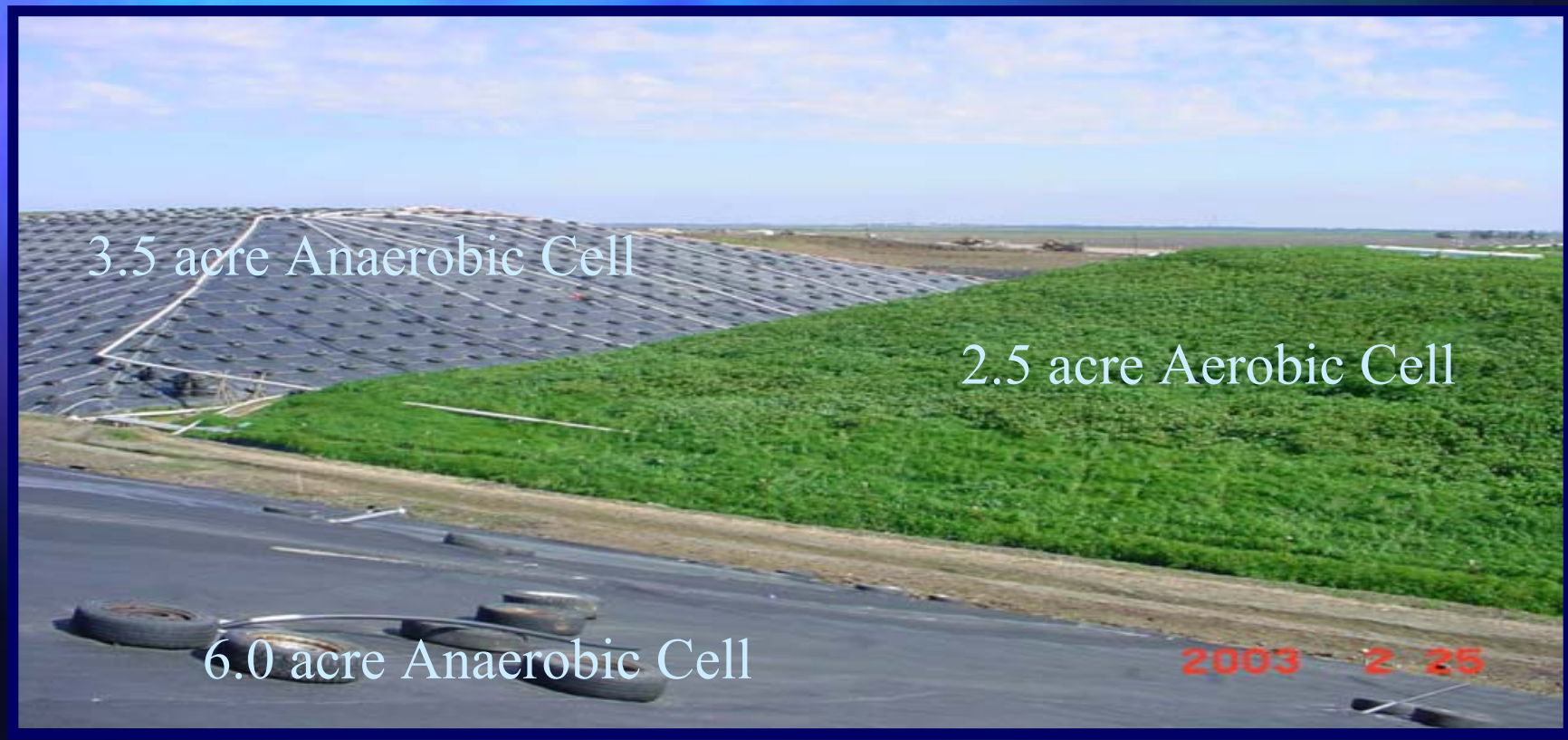

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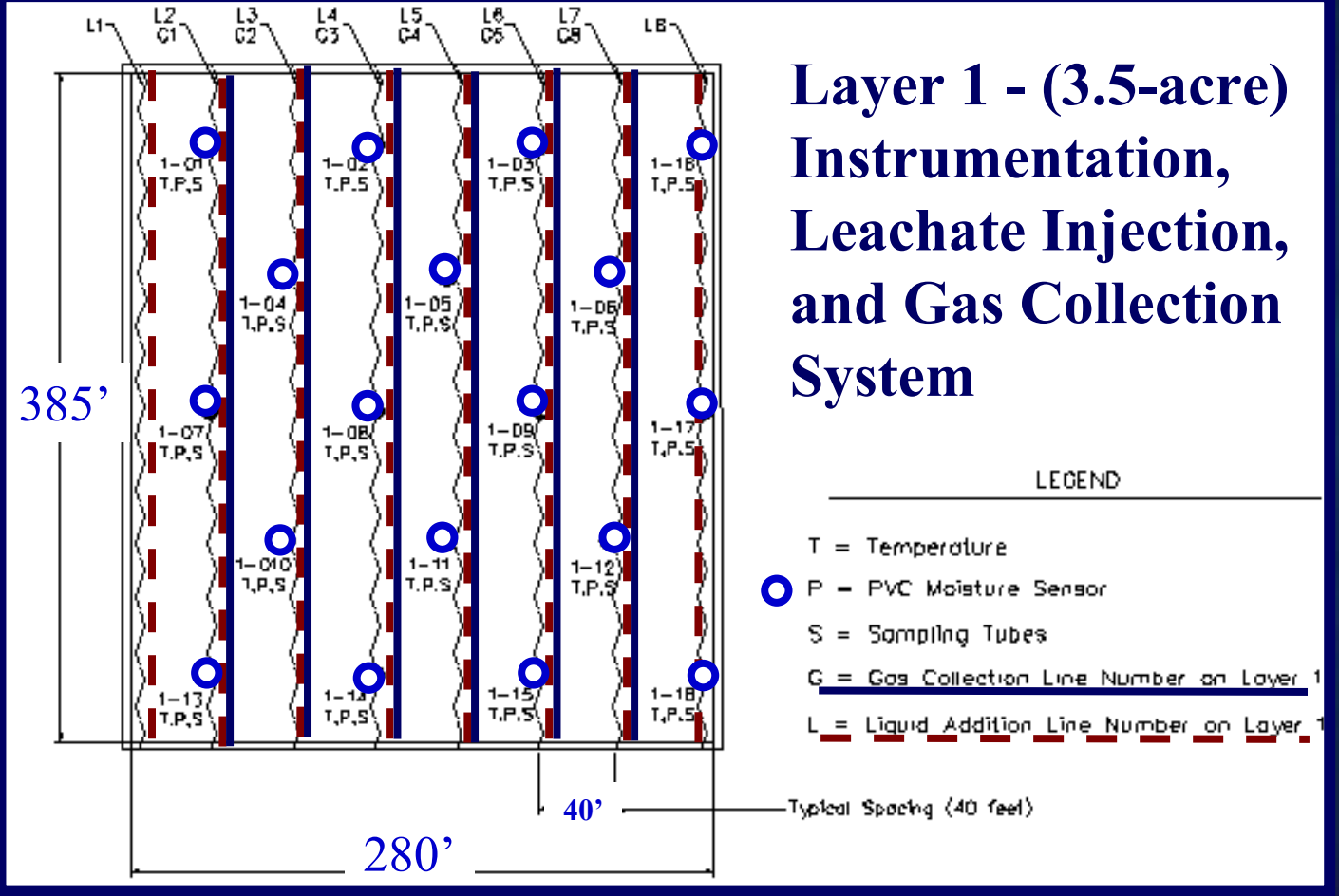


**Layer 1 - (3.5-acre) Instrumentation, Leachate Injection, and Gas Collection System**